

IX. Section IX, Control Strategies for Area and Point Sources

Part C. Carbon Monoxide

IX.C.6 Provo

- a. Effects of the Clean Air Act Amendments of 1990...
- b. Ambient Air Monitoring, Design Value Determination, Classification and Nonattainment Area Boundary...
- c. County-Wide Base Year Emissions Inventory...
- d. County-Wide Projected Emissions Inventory...

e. Projected Vehicle Miles Traveled

Section 187(a)(2) of the Act (42 U.S.C. 7512a(a)(2)) requires the state to submit a table of the VMT projections which will be used to demonstrate that the state is making reasonable further progress towards attaining the NAAQS. The local metropolitan planning organization, Mountainlands Association of Governments (MAG), and the Utah Department of Transportation (UDOT), who are responsible for the development of long-range transportation plans and Transportation Improvement Plan (TIPs), submitted the VMT projections contained in Table IX.C.14 for the gridded modeling domain which contains the non-attainment area, and are committed to meeting them in the appropriate plans and TIPs. As discussed in Section IX.C.6.c(3) and IX.C.6.d(3), vehicle speeds were estimated by the UDOT in cooperation with MAG. The Highway Performance Monitoring System (HPMS) is used in conjunction with vehicular count data to derive VMT for each road link (or section of roadway) and functional class across the network. (See UDOT's report in the Technical Support Document: "1990 VMT by County, City, and F.C.") These historical VMT numbers were then projected into the future by MAG using a smooth extrapolation. Based on this extrapolation, MAG found that VMT could be expected to grow at a rate of about 4.1% across the modeling domain (which covers the non-attainment area) compounded annually from 1992 through 1996. These VMT forecasts are similar to those used in calculating the PM10 emissions in Section IX.A of this SIP. As the PM10 SIP is revised, any differences will be resolved.

As required by the Act, the state will, by September 30 of each year, provide EPA with a report of actual VMT for the preceding calendar year for the Provo/Orem non-attainment area following procedures meeting guidance provided by EPA. These reports will be provided by MAG to the state based on HPMS data provided by UDOT. The reporting area will be identical to that provided by UDOT to UDAQ for the attainment demonstration modeling. MAG will develop revised forecasts each year in accordance with procedures outlined by EPA, and these revised forecasts will be provided to EPA by the State with the report of actual VMT.

Table IX.C.1
ESTIMATED VMT FOR ON-ROAD VEHICLES
MODELING DOMAIN AREA

Functional Class	Actual HPMS Data	Projected VMT			
	1990	1993	1994	1995	1996
Total Daily	4215727	4757183	4952703	5156259	5369736
Total Annual	1411688399	1593232132	1658794016	1727053788	1798122466

f. Contingency/Stop-Gap Measures

(1) Events which trigger contingency measures.

(a) As is discussed in Section IX.C.6.j, the state is proposing to implement an Enhanced vehicle inspection and maintenance (I/M) program beginning no later than July 1, 1995, (or an equivalent automotive improvement program that results in emission factors equal to or less than the emission factors in Table IX.C.23) to demonstrate attainment of the NAAQS. If the Enhanced I/M program is implemented after January 1, 1995, there will be insufficient emissions reductions from the program alone to make the attainment demonstration. That is because, under the present system it will take a full year for the entire vehicle fleet to undergo the Enhanced I/M program. Therefore, if the Enhanced I/M program is implemented after January 1, 1995, (or if an alternative program does not result in emission factors equal to or less than the emission factors in Table IX.C.23), for the winter of 1995/1996, and subsequent control periods, the average oxygen content requirement for gasoline sold in the Provo/Orem MSA will be increased to 3.1% oxygen by weight until the next full control period after either all subject vehicles have been inspected by the Enhanced I/M program at least once, or other automotive improvement programs are in place that meet equivalent emission reductions. An Enhanced I/M program or other automotive improvement programs must be at least equivalent to the mobile source emission factors in the matrix contained in Table IX.C.23. However if alternative control measures are identified that will achieve the emission reductions necessary to attain and maintain the NAAQS, the state will revise the SIP. The average oxygen by weight standard for the oxygenated gasoline program will be reduced to 2.7% after the county is able to meet the emission factors contained in Table IX.C.23 on page 68. This is not the state's preferred option, and is included only to provide the county with time to implement the Enhanced I/M and/or automotive emissions control programs.

(b) Section 187(a)(3) of the Act (42 U.S.C. 7512a(a)(3)) requires that this Plan include contingency measures to be undertaken if the actual vehicle miles traveled (VMT) exceeds the number predicted in the most recent prior forecast (see table IX.C.1). Actual VMT which exceed the projections as outlined in EPA's Section 187 VMT Forecasting and Tracking Guidance dated January 1992 and the General Preamble for the Implementation of Title I of the Clean Air Act

1 Amendments of 1990, trigger the implementation of contingency measures.

2
3 (2) Contingency Measures

4
5 As a contingency measure, along with the adoption of this SIP, the Utah Air Conservation Rules
6 have been changed to implement the ~~[1995/1996]~~ oxygenate requirement, and to require that,
7 within 60 days of the triggering of the contingency measures, only gasoline with an average
8 oxygen content of 3.1% oxygen by weight will be sold in the Provo/Orem MSA during the
9 oxygenated gasoline control period as defined in the rules of the Air Quality Board until it is
10 shown to be unnecessary in the maintenance demonstration provided for in Section 175A(a) of
11 the Act or until it is replaced with other control measures in a SIP revision that demonstrates
12 attainment with the NAAQS. If the state identifies a contingency measure in the future which can
13 result in a documentable equivalent emission reduction, this SIP will be revised to delete this 3.1%
14 oxygen by weight contingency measure and replace it with the equivalent measure.

15
16 The amount of reduction in CO varies depending on the VMT, the specifications of the Enhanced
17 I/M program in effect, temperature, speed, relative market share of each of the oxygenates, etc.
18 However, **as an example**, the MOBILE5a model shows that, for 1996, the emission factor for 30
19 mph at 47.5 degrees F (temperature derived using T_{max} and T_{min} in the Mobile Model) will be
20 reduced by about 4.5% by going from a 2.7% program to a 3.1% program. While the emission
21 reduction from the overall fleet will not be exactly 4.5%, it will be of a similar magnitude
22 depending on the many variables listed above. If the contingency measure is triggered in 1996,
23 and the oxygen by weight standard is increased from 2.7% to 3.1%, the amount of reduction
24 realized would be 9.81 tpd, which equates to approximately 5% of the on-road emissions.
25 Because the VMTs are growing at approximately 4.1%, and the resulting emissions are not
26 growing as rapidly, the reduction obtained is more than one-year's growth in the on-road
27 emissions as required by EPA. The documentation for this reduction is contained in the Technical
28 Support Document.

29
30 The state and county are concerned with the possible impact which increasing the oxygenate
31 content might have on the NO_x emissions from motor vehicles, and therefore on PM_{10}
32 concentrations. As is detailed in the Technical Support Document, increasing the oxygenate
33 content to 3.1% by weight would result in less than a 1% increase in tailpipe emissions of NO_x ,
34 and the implementation of Enhanced I/M will result in approximately an 11% reduction in tailpipe
35 emissions of NO_x , which more than compensates for NO_x increase resulting from the increased
36 oxygenate. Any alternatives to Enhanced I/M provided by other automotive emissions control
37 programs must include controls to offset any estimated NO_x increase resulting from
38 implementation of the oxygenated gasoline program.

39
40 (3) Trigger mechanism

41
42 (a) If triggered under the provisions of IX.C.6.f(1)(a)- (EIM Requirement)

43
44 The contingency measures will become effective as per IX.C.6.f(1)(a) if the Enhanced I/M
45 program required in IX.C.6.j is implemented after January 1, 1995, or if an alternative program

1 does not result in emission factors equal to or less than the emission factors in Table IX.C.23. For
2 the winter of 1995/1996, and subsequent control periods, the average oxygen content requirement
3 for gasoline sold in the Provo/Orem MSA will be increased to 3.1% oxygen by weight. This
4 requirement will remain in effect until the next full control period after either all subject vehicles
5 have been inspected by the Enhanced I/M program at least once, or other automotive
6 improvement programs are in place that result in equivalent emission reductions. ~~[within 60 days~~
7 ~~after EPA has notified the state that [either]the attainment date specified in the Act has not been~~
8 ~~met., the VMT projections contained in this SIP have been exceeded by more than the amount~~
9 ~~specified in the Act, or if subsequent VMT forecasts exceed VMT forecasts contained in this~~
10 ~~SIP].~~

11
12 (b) If triggered under the provisions of IX.C.6.f(1)(b) - (VMT Requirement)

13
14 Section 187(a)(3) of the Act (42 U.S.C. 7512a(a)(3)) specifies that, if triggered by excess VMTs,
15 the contingency measures shall "...take effect without further action by the State or the
16 Administrator..." Updating of VMT projections occurs annually in reports of prior year actual
17 measurements provided to the UDAQ and EPA by the Utah DOT and MAG. The contingency
18 measures will become effective within 60 days after submittal by MAG of an annual report of
19 actual VMTs documenting excess VMTs for the preceding calendar year for the Provo/Orem
20 non-attainment area which has been prepared following procedures meeting guidance provided by
21 EPA.

22
23 (C) If triggered by non-attainment of the standard

24
25 The contingency measures will become effective within 60 days after EPA has notified the state
26 that the attainment date specified in the Act has not been met.

27
28 As a means of documenting the Mobile Source Emissions Cap established for the purposes of
29 demonstrating conformity of Long Range Transportation Plans, the emissions cap for the gridded
30 area provided by UDOT for the attainment demonstration modeling is 138.5 Metric Tons/Day.

31
32 g. Basic Vehicle Inspection and Maintenance

33
34 As a result of the Clean Air Act Amendments of 1990, EPA promulgated Title 40 of the Code of
35 Federal Regulations (CFR), Part 51, which established minimum requirements for basic and
36 Enhanced I/M programs. The state was required to demonstrate that all of the I/M programs in
37 operation in the state meet the federal basic program requirements. As a result of that
38 promulgation, the state revised this SIP to include Section X, Basic Automotive Inspection and
39 Maintenance (I/M). The Utah County I/M program was revised to comply with the basic I/M
40 program requirements specified in 40 CFR Part 51, Section X of this SIP, and applicable Utah
41 Statutes. Those changes will remain intact until replaced by the Enhanced I/M program required
42 in Section IX.C.6.j of this SIP.